

Pneumatic Actuators Market Assessment, By Type [Linear Pneumatic Actuator, Rotary Pneumatic Actuator], By Control [Flow Control, Motion Control], By Application [Aerospace and Defense, Oil and Gas, Food and Beverages, Healthcare, Others], By Region, Opportunities and Forecast, 2017-2031F

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Report description:

Pneumatic actuators market globally is projected to witness a CAGR of 4.12% during the forecast period 2024-2031, growing from USD 5.21 billion in 2023 to USD 7.20 billion in 2031. Rapid industrialization along with increased manufacturing across the globe is expected to revolutionize the global pneumatic actuators market. The integration of smart technologies and Industry 4.0 principles are transforming pneumatic actuators according to the future. This includes incorporating sensors, IoT connectivity, and advanced control systems. Smart pneumatic actuators can provide real-time data on performance and diagnostics, enabling predictive maintenance and enhanced process control. This integration helps improve efficiency, reduce downtime, optimize operations, and add value to the global market.

There is a growing trend toward miniaturization and the development of compact pneumatic actuators. These smaller actuators are designed to fit into tighter spaces and are often used in applications requiring precise control. Compact pneumatic actuators are increasingly used in industries such as electronics, automotive, and medical devices, where space is limited, and high precision is essential.

There is a heightened focus on energy efficiency and sustainability in pneumatic systems. Manufacturers are developing actuators that consume less energy and have reduced environmental impact. Energy-efficient pneumatic actuators help in lowering operational costs and supporting corporate sustainability goals. They contribute to reducing the overall carbon footprint of industrial operations and align with broader environmental regulations and initiatives. Furthermore, companies seek different certifications and ensure compliance before launching new actuators.

For instance, in March 2024, Festo SE & Co. KG. introduced new National Fluid Power Association (NFPA)-compliant pneumatic actuators. This actuator works well with converting machines for a number of tasks, including loading, sorting, stacking, insertion,

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lifting, dispensing, clamping, and gates.

Industrial Automation and Modern Manufacturing to Fuel Market Growth

Industrial automation of industries such as aerospace, automotive, and manufacturing has increased the global demand for actuators. Pneumatic actuators are an essential part of automated systems for managing equipment and procedures. Actuators that can manage complicated operations and repetitive activities efficiently and dependably are becoming necessary as industrial processes become more sophisticated. Pneumatic actuators are crucial in construction machinery and equipment due to the continuous development of infrastructure and construction projects worldwide. The market is expanding due to advancements in pneumatic actuator technology, including enhanced performance, reduced energy consumption, and integration with smart systems.

Innovations in pneumatic actuators improve their functionality and expand their range of uses. These include creating more effective and smaller actuators, enhancing the durability of materials, and incorporating digital controls and intelligent technologies. These improvements allow actuators to work more effectively, with increased accuracy and lower maintenance requirements, thereby increasing their use in different sectors.

Companies are working on new-generation pneumatic actuators. For instance, in March 2023, the KSB group launched a new generation of pneumatic 90-degree quarter-turn actuators. The ACTAIR EVO and DYNACTAIR EVO models, both part of the double-acting and single-acting pneumatic actuator series, are engineered to operate various kinds of valve parts, including butterfly valves, ball valves, and plug valves.

Rapid Adoption of Robotics and Sustainability Trends to Fuel Market Growth

Robotics is a rapidly growing field with applications spanning from industrial robots to manufacturing medical robots in healthcare. Pneumatic actuators are used in robots to control joints and actuating movements. As robotics technology advances and its applications expand, the demand for pneumatic actuators increases to support these sophisticated systems. Pneumatic actuators are often chosen for their energy efficiency and minimal environmental impact compared to other types of actuators. They can be powered by compressed air, which is often more environmentally friendly than hydraulic or electric power sources. The global push towards sustainability and energy efficiency aligns with the benefits of pneumatic actuators, encouraging their use in various applications. As regulatory demands and safety norms rise in different sectors, there's a growing emphasis on employing parts that adhere to these standards. Pneumatic actuators, recognized for their dependability and safety attributes are being more frequently utilized to guarantee adherence to these rules. Technological advancement, along with data tracking, is expected to propel market growth.

For instance, in 2022, OMAL Group launched the Rackon-X, a revolutionary wireless pneumatic actuator equipped with a data tracking unit for monitoring and storing key operating data. The result of extensive research and development, this unique product complements the developing global tendency to integrated solutions to track data and maintain forecasting.

Wide Application Range and Higher Precision to Propel Rotary Segment's Growth

Based on type, rotary actuators are likely to lead in terms of revenue share. Numerous industries, including the automotive, aerospace, packaging, and industrial sectors, use rotary actuators. They are appropriate for various applications, including robotic arms and valve control, due to their capacity to produce exact rotating motion. They can be used to satisfy specific application needs because they are available in various designs and combinations, including rack-and-pinion, piston, and vane-type rotary actuators.

For applications that need precision positioning and repeatability, rotary actuators provide accurate control over rotating movement. Process control and automation depend on this accuracy. In general, rotary actuators are smaller in size than linear actuators. Due to its compactness, this feature can be more easily integrated into machinery and systems in situations when space is at a premium.

In July 2023, IC-Fluid Power, Inc. (International Hydraulic Components Group) launched its new IC series of helical spline rotary actuators. The new standardized IC Series shortens lead times so OEMs can build and repair equipment faster.

Asia-Pacific Dominates Pneumatic Actuators Market Share

Based on region, Asia-Pacific leads the global pneumatic actuators market share. The region is home to some of the world's largest and most dynamic manufacturing bases, including China, India, Japan, and South Korea. These countries have a wide range of industrial and manufacturing activities that rely heavily on pneumatic actuators for automation and control. The region's

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strong manufacturing base creates significant demand for pneumatic actuators for production lines, assembly processes, and material handling.

Countries in Asia-Pacific have experienced rapid economic growth, which has driven infrastructure development, industrial expansion, and modernization. This economic development is reflected in increased investments in automation and advanced manufacturing technologies, where pneumatic actuators play a critical role. Economic growth has set companies in India to function freely while adopting the latest technologies for higher productivity.

For instance, in February 2022, ABB Ltd. completed the remote commissioning of new actuators for an Indian paper and paperboard business. The Slice xP (II) Profiler system, an actuator for slice lip weight management, was installed and remotely commissioned by the company at the Tribeni plant of ITC Paperboards and Specialty Papers in West Bengal, India.

Future Market Scenario (2024 - 2031F)

-□Industrial expansion and rapid advancements in the factories is likely to increase the adoption of equipment such as pneumatic actuators.

-□Technological integration, higher productivity, and application-specific designs are anticipated to garner market growth.

-□3D product modeling, usage of different types of spring materials, and government compliances to shape the market dynamics.

Key Players Landscape and Outlook

The global pneumatic actuator market is competitive and dynamic, with several key players adopting diverse strategies to capture market share and drive growth. Companies are continually investing in research and development to create more efficient, durable, and smart pneumatic actuators. Integrating IoT and automation technologies is becoming increasingly important. Expanding into emerging markets is a common strategy. Companies are establishing new production facilities, distribution channels, and service centers to cater to growing industrial demands in these regions. Providing tailored solutions for specific applications or industries helps companies cater to niche markets and differentiate themselves from competitors. Collaborations with other companies, technology providers, and industry players help expand product offerings and enter new markets.

For instance, in November 2023, SMC Corporation introduced a new set of regulators and actuators for automation systems. These products include a pressure regulator and two linear actuators for controlling motion in pneumatic and electric systems. A manifold regulator for controlling a compressed air line's pressure is the first new product. These are made to function with many components; a group of them can function as a manifold regulator, allowing the control of several pneumatic lines from a single supply line.

In January 2024, Emerson Electric Co. launched the Fisher easy-Driver 200R Electric Actuator for use on Fisher butterfly and ball valves. The novel actuator works properly and dependably under the harsh conditions encountered in many heavy industries, especially in oil and gas installations situated in remote, frigid regions, when combined with these valves.

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